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## *Bulbophyllum filifolium* (Orchidaceae), a New Species from Southeastern Brazil

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**ABSTRACT.** *Bulbophyllum filifolium*, a new orchid species from Brazil belonging to section *Xiphizusa*, is described and illustrated. The new species is rare and endemic to the municipality of Grão Mogol, Minas Gerais state, growing on rocks in campo rupestre vegetation. *Bulbophyllum filifolium* is easily recognized by its thread-like leaves, one-flowered inflorescences, and ovate petals with long club-like appendages on the margin.

**Key words:** Brazil, *Bulbophyllum*, Orchidaceae.

*Bulbophyllum* Thouars is the largest orchid genus, comprising over 1000 species throughout the tropics (Vermeulen, 1991; Dressler, 1993). The species occur mostly in the Old World, although nearly 70 species are present in the New World. Pabst and Dungs (1975, 1977) cited 54 species for Brazil, and with the addition of some recently described species and new occurrences for this country (e.g., Borba et al., 1998; Fraga, 1999; Toscano de Brito, 2000), this number is increased to about 60.

Twelve of the Brazilian *Bulbophyllum* species belong to section *Xiphizusa* (Reichenbach f.) Cogniaux, characterized mainly by the long fused sepals. Those species are mainly epiphytic in forest areas in southeastern Brazil, and occasionally lithophytic in campo rupestre vegetation, as *B. plumosum* (Barbosa Rodrigues) Cogniaux. The campo rupestre of the Espinhaço Range is the Brazilian vegetation with the highest number of endemisms and greatest diversity (Joly, 1970; Giuliatti & Pirani, 1988). Due to the discontinuity of these mountain ranges and outcroppings, many species, mainly the lithophytic ones, are distributed in disjunct populations. Because of that, some sites are especially rich in the number of endemic species and/or present populations differentiated (e.g., genetically, morphologically, chemically) from the core area of the species, as in the region of Grão Mogol in the north of Minas Gerais (Giuliatti & Pirani,

1988; Borba et al., 2001a, 2001b, 2002). In the course of a revision of Brazilian *Bulbophyllum* and the population genetics and reproductive biology studies of the orchids of Grão Mogol, we found a new species of *Bulbophyllum* in section *Xiphizusa* with remarkable leathery thread-like leaves, described as follows:

***Bulbophyllum filifolium*** Borba & Smidt, sp. nov.

TYPE: Brazil. Minas Gerais: Grão Mogol, Serra do Barão, 16°33'S, 42°54'W, 7 Jan. 2002 (fl), E. L. Borba 1999 & C. van den Berg (holotype, HUEFS). Figure 1.

Species haec *Bulbophyllo pabstii*, *B. bidentato*, *B. plumoso* et aliis speciebus sectionis *Xiphizusa* similis; ab omnis speciebus folio filiforme inflorescentia uniflora et combinatione labelli lobo medio carnosio, lobis marginibus lateralibus dense curto-ciliatis ornatis et petalis ovatis appendicibus claviformibus ornatis longioribusque ad marginem differt.

Lithophytic herbs; roots 20–40 mm long, thread-like, fasciculate; rhizome 2–8 × 1 mm, creeping; pseudobulbs 4–8 × 6–7 mm, aggregate, ovoid, slightly 3- to 4-angular, monophyllous. Leaves 25–30 mm long, 1 mm diam., thread-like, leathery, folded, erect, apex acute, base canaliculate and attenuate. Inflorescence basal, one-flowered; scape 40–50 mm long, curved, with 4 sheath-like bracts, 3–4 mm long, adpressed, not imbricate; floral bracts 4 × 3 mm, ovate-lanceolate, glabrous, apex acute; flower pendent; ovary 3 mm long, sulcate; sepals membranaceous, subequal, erect-patent, boat-shaped, glabrous; dorsal sepal 14 × 3 mm, linear-lanceolate, 3-nerved, apex acute; lateral sepals fused up to the apex, synsepal 14 × 5 mm, lanceolate, 7-nerved, apex acute, slightly gibbous at base; petals 4 × 3 mm, oblique-ovate, erect, 1-nerved, margins ciliate at the base, with club-like appendages up to 1 mm long increasing in size from base to apex; lip 9 × 1.7 mm, fleshy, erect, parallel to column, movable; lateral lobes 4 mm long, erect, auriculate, densely

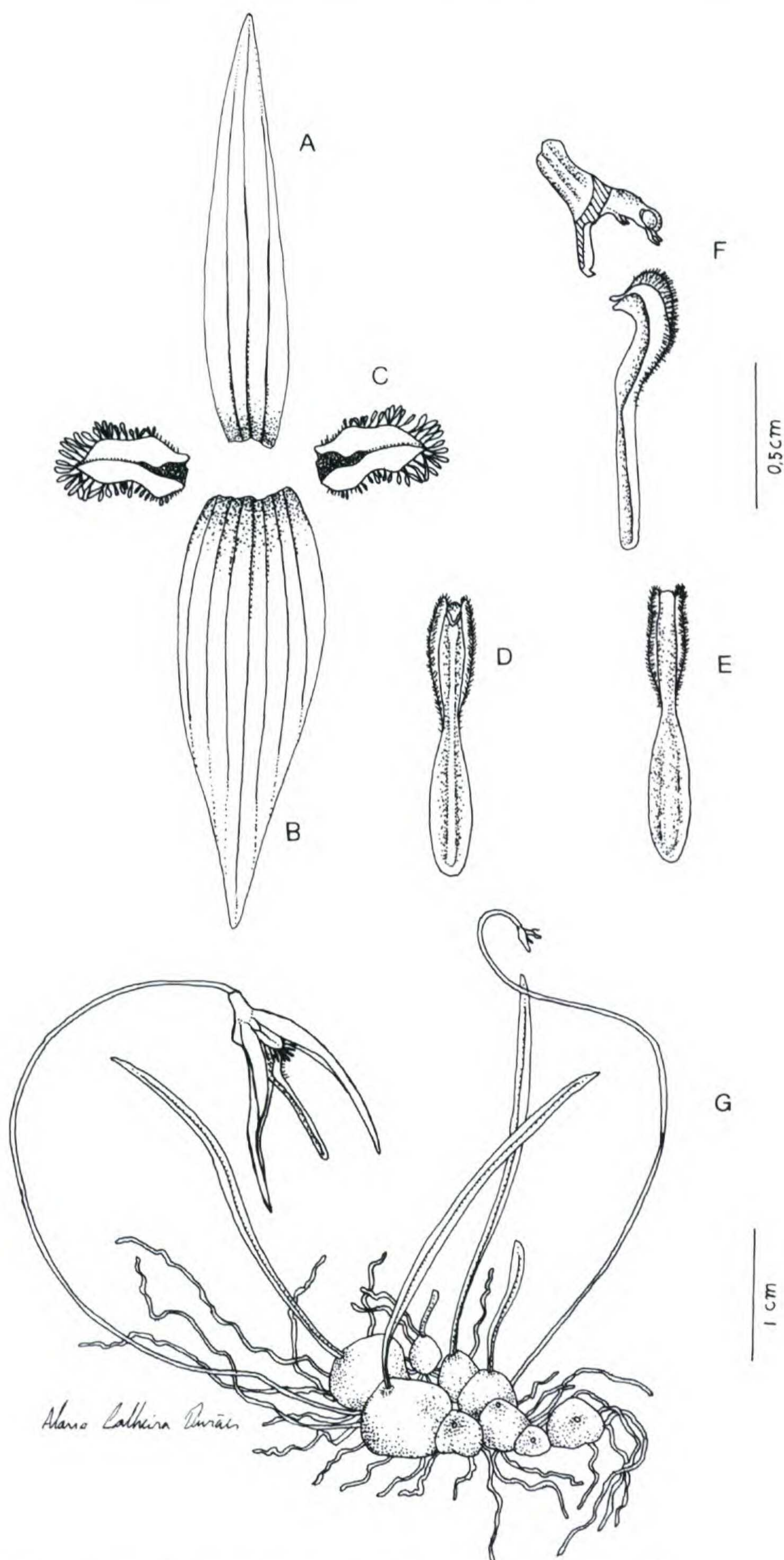


Figure 1. *Bulbophyllum filifolium* Borba & Smidt. —A. Dorsal sepal. —B. Fused lateral sepals. —C. Petal. —D. Lip, lower view. —E. Lip, upper view. —F. Lip (below) and column (above), in side view. —G. Habit. Scale bars: 0.5 cm, A–F; 1 cm, G. Drawn from the holotype, Borba 1999 & van den Berg, by Alano Duraes.

short-ciliate; mid-lobe 5 mm long, linear-elliptic, adaxially with one distinct longitudinally sulcate ridge, adaxial surface glabrous, apex rounded; column  $3 \times 1.1$  mm, with two sinuate stellidia at apex and two falcate teeth on the ventral face; anther versatile, 3-globose.

**Etymology.** This species is named for the extremely narrow, linear (thread-like) leaves, the narrowest among the Brazilian *Bulbophyllum* species.

**Distribution.** *Bulbophyllum filifolium* grows on rock outcrops of quartzite in the campo rupestre vegetation of Serra do Barão, in the municipality of Grão Mogol, in the state of Minas Gerais, Brazil, a disjunct area of the main Espinhaço Range. The campo rupestre vegetation is characterized by open, herbaceous vegetation on sandy, stony soils mixed with herbs and shrubs growing on outcroppings of quartzite, sandstone, gneiss or “canga” (iron) rocks (Giulietti & Pirani, 1988; Borba et al., 2001a). This species appears to be endemic to the Grão Mogol region and is rare, as only three individuals have been found despite several field trips made to the type locality. A fragment of the same individual as the holotype is currently under cultivation at the Universidade Estadual de Feira Santana (another fragment of the same individual and the other two individuals remain undisturbed at the original locality). The Serra do Barão was recently defined as a State Reserve (Parque Estadual de Grão Mogol), and *B. filifolium* possibly occurs at other sites there. Further studies are necessary to assess the conservation status of the species.

*Bulbophyllum filifolium* belongs to section *Xiphizusa* as suggested by its floral and vegetative morphology, such as the erect rachis not geniculate and not thickened, lateral sepals long and connate to the apex forming a synsepal, a column with two long stellidia at the apex and two small teeth on the ventral face, and pseudobulbs aggregate and sulcate. The movable lip is a common feature in the genus and probably plays an important role in the pollination mechanism of this species (wind-assisted fly pollination; Borba & Semir, 1998), as observed in other species of section *Xiphizusa* presenting similar flower structure (e.g., *B. plumosum* (Barbosa Rodrigues) Cogniaux and *B. bidentatum* (Barbosa Rodrigues) Cogniaux; Verola, 2002). This species is easily recognizable by its thread-like leaves and one-flowered inflorescences, unique among the members of *B.* sect. *Xiphizusa*. The other two Brazilian *Bulbophyllum* species with narrow leaves are *B. insectiferum*

Barbosa Rodrigues and *B. adiamantinum* Brade, belonging to sections *Bulbophyllaria* and *Micrantha*, respectively. However, conversely to *B. filifolium*, these two species have succulent cylindrical leaves and multi-flowered inflorescences with very distinct flowers; they also occur in Minas Gerais, but are not sympatric with *B. filifolium*. The long club-like appendages on the petal margins are uncommon in other species of the section, being observed only in *B. pabstii* Garay. However, *B. filifolium* has ovate petals and the mid-lobe of the lip is fleshy, whereas *B. pabstii* has ovate-lanceolate petals and the mid-lobe of the lip is membranaceous; it also differs by the oblong-lanceolate leaf (ca. 10 mm wide) and the multi-flowered inflorescence. The lip mid-lobe of *B. filifolium* is similar to that of *B. bidentatum*, but the latter differs by the petals without the club-like appendages, the lateral lobes of the lip not ciliate, the oblong-lanceolate leaves (ca. 8 mm wide), and the multi-flowered inflorescence.

Because we found only plants with old flowers we cannot describe the flower color accurately, but they appear to be entirely purple or dark red and similar to those of *B. bidentatum*.

**Acknowledgments.** Thanks are due to Cássio van den Berg for the Latin diagnosis and other improvements to the manuscript.

#### Literature Cited

- Borba, E. L. & J. Semir. 1998. Wind-assisted fly pollination in three *Bulbophyllum* (Orchidaceae) species occurring in the Brazilian campos rupestres. *Lindleyana* 13: 203–218.
- , ——— & F. Barros. 1998. *Bulbophyllum involutum* Borba, Semir & F. Barros (Orchidaceae), a new species from the Brazilian campos rupestres. *Novon* 8: 225–229.
- , J. M. Felix, V. N. Solferini & J. Semir. 2001a. Fly-pollinated *Pleurothallis* (Orchidaceae) species have high genetic variability: Evidence from isozyme markers. *Amer. J. Bot.* 88: 419–428.
- , J. R. Trigo & J. Semir. 2001b. Variation of diastereoisomeric pyrrolizidine alkaloids in *Pleurothallis* (Orchidaceae). *Biochem. Syst. Ecol.* 29: 45–52.
- , G. J. Shepherd, C. van den Berg & J. Semir. 2002. Floral and vegetative morphometrics of five *Pleurothallis* (Orchidaceae) species: Correlation with taxonomy, phylogeny, genetic variability and pollination systems. *Ann. Bot.* 90: 219–230.
- Dressler, R. L. 1993. *Phylogeny and Classification of the Orchid Family*. Cambridge Univ. Press, Cambridge.
- Fraga, C. N. 1999. *Bulbophyllum gomesii* Fraga (Orchidaceae), uma nova espécie da floresta atlântica do Espírito Santo, Brasil. *Bradea* 8: 135–138.
- Giulietti, A. M. & J. R. Pirani. 1988. Patterns of geographic distribution of some plant species from the Espinhaço Range, Minas Gerais and Bahia, Brazil. Pp. 39–69 in W. R. Heyer & P. E. Vanzolini (editors), *Pro-*

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ceedings of a Workshop on Neotropical Distribution Patterns. Academia Brasileira de Ciências, Rio de Janeiro.

Joly, A. B. 1970. Conheça a Vegetação Brasileira. EDUSP, São Paulo.

Pabst, G. F. J. & F. Dungs. 1975. Orchidaceae Brasilensis, Vol. 1. Brücke-Verlag, Hildesheim.

——— & ———. 1977. Orchidaceae Brasiliensis, Vol. 2. Brücke-Verlag, Hildesheim.

Toscano de Brito, A. L. V. 2000. Two new species of Orchidaceae from Brazil. *Lindleyana* 15: 184–188.

Vermeulen, J. J. 1991. Orchids of Borneo, Vol. 2—*Bulbophyllum*. Royal Botanic Gardens, Kew.

Verola, C. F. 2002. Biologia Floral e Sistemas de Reprodução em Espécies de *Bulbophyllum* (Orchidaceae) Ocorrentes em Mata de Galeria, Campo Rupestre e Floresta Estacional. M.Sc. Thesis, Universidade Estadual de Campinas, Campinas.